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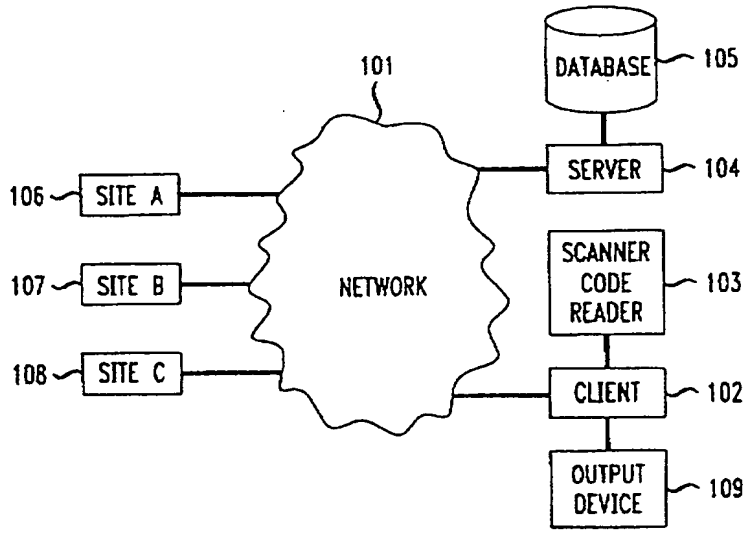
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(54) **MOTEUR DE RECHERCHE DE RESEAU UTILISANT DES CODES DE BALAYAGE**

(54) **NETWORK-BASED SEARCH ENGINE USING SCANNER CODES**



(57) Un localisateur de ressources d'information uniformes ou une pluralité de liaisons hypertexte associées à des ressources d'information, ces ressources étant accessibles par l'intermédiaire d'un réseau, est obtenu au moyen d'un code de balayage. Les données d'un code de balayage sont reçues d'un utilisateur. Une base de données permettant de corréler les données du code de balayage avec le localisateur de ressources uniformes ou les adresses des ressources est consultée. Le localisateur de ressources uniformes ou les adresses des ressources qui correspondent aux données du code de balayage sont alors fournies à l'utilisateur.

(57) A uniform resource locator of an information resource or a plurality of hypertext links for information resources on a network is obtained using a scanner code. Scanner code data is received from a user. A database correlating the scanner code data with the uniform resource locator or resource addresses are queried. The uniform resource locator or resource addresses corresponding to the scanner code data are provided to the user.

NETWORK-BASED SEARCH ENGINE USING SCANNER CODES

ABSTRACT OF THE DISCLOSURE

A uniform resource locator of an information resource or a plurality of hypertext links for information resources on a network is obtained using a scanner code. Scanner code data is received from a user. A database correlating the scanner code data with the uniform resource locator or resource addresses are queried. The uniform resource locator or resource addresses corresponding to the scanner code data are provided to the user.

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NETWORK-BASED SEARCH ENGINE USING SCANNER CODES

FIELD OF INVENTION

The present invention relates to a search engine for locating the resource addresses of information resources on a network. Specifically, the present invention relates to using a scanner code associated with a particular product or service to locate the resource addresses of information resources that pertain to that product or service and are stored on the network.

BACKGROUND OF THE INVENTION

Finding information resources distributed across a network with a large number of nodes and many resources can be problematic. For example, the World Wide Web on the Internet is a network on which it is difficult to find information resources responsive to a particular need in part because of its large size. The World Wide Web comprises information resources stored in collections known as Web sites. Each Web site generally stores information in accordance with a theme. For example, one Web site stores information about the Baltimore Orioles, including their current roster and game schedule. Another Web site stores information about Museum of Modern Art in New York City, including samples from its collection and its hours of operation. It can be seen from these two examples, Web sites store information on a very wide variety. Due to the size and extent of the World Wide Web, however, finding these information resources can be difficult.

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Known methods for finding resources on the World Wide Web include search engines. Examples of known search engines include Altavista <http://altavista.digital.com.>, Infoseek <http://www.infoseek.com> and Lycos <http://www.lycos.com>. These known search engines scan the information resources of the World Wide Web, download selected data, and then correlate the selected data with its resource address within a database record. The selected data can further be cross correlated with other selected data and resource addresses that are related to each other in some way. This correlated information is stored in a database which is generally a proprietary search engine that has gathered and correlated the information.

To find an information resource on the World Wide Web, a user types on a keyboard a keyword search to a search engine. In response to the user keyword search request, known search engines search their databases for resource addresses that relate to the keyword. These resource addresses are then presented to the user, often along with summary information. The user browses and selects information resources based upon their apparent responsiveness to the user's needs.

For example, a keyword search based on a particular brand of soap submitted to known search engines could result in as many as 100,000 information resources matching the query, far too many for any user to comprehensively review. Known search engines attempt to ameliorate this problem by prioritizing these results and presenting the best results matches first. An example of a known prioritizing method is to present resource addresses for which the keyword occurs more frequently to the user.

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The known search engines can present resource addresses for which the keyword occurs less frequently in later pages presented to the user.

The accuracy of known search methods can be poor. These so-called "best matches" may not relate to the particular brand of soap per se. Rather, the information resources produced by the search may relate to completely unrelated products, such as a particular soap opera or a particular soap opera publication. For a user seeking information on the particular brand of soap, these search results are non-responsive. With sufficient guesswork or luck, a user may be able to formulate a search request that accurately returns the resource addresses of information resources precisely responsive to the user's needs. The user, however, is generally unable to effectively formulate a search request that yields the desired information for a particular product or service.

A better way is needed for the user to submit a search request for information resources on a network and to obtain reliably and accurately the addresses of information resources precisely responsive to the user's needs.

Another known method for retrieving stored information involves submitting scanner code data to a computer processing unit (CPU). See U.S. Patent 5,463,209 issued to Figh et al. on October 31, 1995. Scanner code data is derived from a graphical scanner code of the type shown in FIG. 3. The scanner code shown in FIG. 3 is a Universal Product Code (UPC). A unique UPC is placed on the packaging of a product.

The product is scanned at a vending machine, including a scanner, by a

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customer. The vending machine sends scanner code data derived from the scanned UPC to the CPU connected to a database. The CPU converts the scanner code data to a memory address within the connected database. The database stores product information correlated to the UPC of the product. Product information includes such characteristics as product name and price. Product name and price are sent back to the vending machine. At the cashier terminal, the product information is displayed to the cashier and the customer purchasing the product. The pricing information is used to calculate the amount owed by the customer. The pricing and the product information is used to create a record of the transaction in the form of a receipt.

In this known system, scanner code data is used to retrieve contents of an information resource comprising a single database. The contents of the needed information resource are at a known location, i.e., the only database. This system, while it carries out finding function, would be unsuitable for the purpose of determining the location of an information resource on a large network storing a multitude of information resources at different locations.

U.S. Patent 5,594,226, issued to Steger on September 5, 1995, is another known system for obtaining information from a network using scanner codes. The Steger system uses the bar code printed on a check, traveler's check or money order. The bar code is scanned to obtain scanner code data. A database is then consulted to determine the identity of the appropriate bank, traveler check company or money order company, which is then automatically contacted. A request for account status information is then

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sent to the selected financial institution. The status information is sent to the user who provided the scanned data; generally the user is a merchant. The database in the Steger system is connected to a switch capable of switching an electronic transaction from one computer on a network to another. When the switch receives the scanner code data, the database causes the switch to automatically connect the sender to the appropriate financial institution. Data from the bank is then sent to the merchant who scanned the bar code. Here, as in other known systems, the scanner code is used to obtain the content of an information resource on a network, not the address of an information resource on the network.

The known systems all suffer from several shortcomings. First, known systems use scanner codes to obtain the content of information resources that are stored on a network. None of these known methods, however, are directed toward providing a user with the addresses of network information resources pertaining to the scanner code which is input by the user. Returning content disadvantageously precludes the user from selecting among the information available regarding the product of service corresponding to the scanner code. In other words, once the user has submitted the scanner code data to the system, the system returns a fixed, pre-arranged set of information to the user. A more advantageous system would allow the user to pick and choose which information is delivered to the user regarding a product or service corresponding to a scanner code.

Second, another shortfall of known systems that use scanner codes to locate

information on the network is that none operate as a finding tool for such information on the Internet. A more advantageous system would use scanner code data provided by a user to provide the Uniform Resource Locator (URL) of an Internet resource to the user. The user would then be able to fetch the information resource located at the URL provided by the system.

SUMMARY

The present invention uses the unique information contained within a scanner code associated with a particular product or service to obtain at least one address of an information resource on a network pertaining to that product or service. The present invention can advantageously enable the user to select from the resource addresses which information resources pertaining to a product or service are to be delivered to the user. This enables the user to advantageously tailor the information with which the user is provided in response to inputting scanner code data. Similarly, the present invention advantageously enables a product manufacturer or information provider to select which information resource addresses are correlated with each particular scanner code associated with a particular product or service.

The present invention also returns a URL of an information resource on the Internet in response to scanned data input by a user. In one embodiment, the present invention also advantageously returns a group of related URLs in response to the scanner code data input by a user.

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In accordance with the present invention, scanner code data is received from a user. In one embodiment of the present invention, the user has purchased a product that has a Universal Product Code (UPC) which the user scans using an electronic scanner connected to the user's computer. In another embodiment, the user scans a Stock-Keeping Unit (SKU) affixed to an article in the process of manufacture, or at a retail outlet.

In accordance with the present invention, the scanner code is used to query a database containing records that correlate scanner code data with resource addresses of information resources on a network. In one embodiment of the present invention, scanner code data are correlated with the resource address of an information resource by pre-arrangement. For example, a manufacturer of a particular product places information resources regarding a specific product on a network at particular addresses. The manufacturer then registers these resource addresses and the corresponding UPC scanner code that appears on the product. The resource addresses correlated with the UPC scanner code data are stored in a database.

In another embodiment of the present invention, the network is searched for information resources relating to products known to have associated scanner code data. The addresses of information resources are correlated with at least one relevant scanner code and stored in a database.

When a user provides scanner code data to a server in accordance with the present invention, the server returns to the user the resource addresses correlated to the

scanner code data in the database.

In yet another embodiment of the present invention, information that is closely related to the product or service corresponding to scanner code data is presented to the user. This information is known beforehand to be closely related to the product or service; consequently, multiple information resource addresses can be associated with the scanner code of the particular product or service, within a database correlating the scanner codes with the address of information resources. For example, a manufacturer can register multiple information resource addresses with a particular scanner code. In such a case, for example, a user providing scanner code data from a can of lentil soup made by a particular company is provided with the resource address of an information resource on the network that pertains precisely to lentil soup made by that manufacturer; the user is also provided with additional addresses for similar soups made by other manufacturers. Alternatively, if a user provides scanner code data for which there is no directly correlated network information resource, the user is advantageously provided with resource addresses of closely related products.

The resource addresses of information resources corresponding to scanner code data provided by the user are advantageously displayed to the user in an easy-to-u se graphical user interface. In one embodiment the resource addresses presented to the user are hypertext links. When any hypertext link is selected by the user, the information resource at that address is promptly displayed.

The search results are provided to the user through an output device. The output

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device can be a video monitor, a printer and/or an audio speaker. A video monitor is advantageously used as an output device, when the information resources are embodied as hypertext pages in Web sites on the World Wide Web. Such hypertext pages are often best viewed using the video monitor. A printer is advantageously used as the output device when obtaining forms, manuals and bulletins which are meant to be posted. An audio speaker is advantageously used as an output device to provide music and spoken information. These devices may be advantageously combined to provide multi-media information to the user. For example, the video monitor can be used with the audio speaker to provide a video and audio information to the user. A printer device can also be used to provide printed coupons relating to the specific product corresponding to the scanner code data provided by the user.

Scanner code data can be obtained from an optical scanner, a keyboard, a mouse or a microphone. For example, an optical scanner can be used to scan a UPC or SKU code affixed to a product. A keyboard can be used to input the decimal digits that accompany a UPC Code. A mouse may be used to select a particular UPC Code from a set of UPC codes presented to the user on the display. A microphone can be used to receive a spoken version of the decimal digits accompanying a UPC code. Voice recognition software can translate these digits into digital signals which are then provided as scanner code data in accordance with the present invention.

The scanner code can have information coded in one dimension of the scanner code or can have information coded in two dimensions of the scanner code. Examples

of one dimensional scanner codes include: the Universal Product Code, Uniform Product Numbers, Stock Keeping Unit, International Standard Book Number and International Article Number. The two dimensional scanner code can be one of any number of standards, including Code 49 scanner code introduced by the Intermec Corporation in 1988.

In another embodiment of the present invention, the scanner code data can be directly related to the network address. A database can be queried to provide supplemental information. The network address can be constructed from the scanner code data and the supplemental information.

In another embodiment of the present invention, scanner code data can be used to establish a connection between a calling party and a called party. The connection can be established over a data network. The scanner code data is used to query a database to obtain the called party's network address. The network address to provided to the calling party. Alternatively, the connection can be established over a telephone network. The scanner code data is used to query a database to obtain the called party's telephone number. The calling party's telephone number and the called party's telephone number are provided to the telephone network to establish the call.

The present invention advantageously provides a way for the user to find information resources on a network using widely available scanner codes associated with products and services. In accordance with the present invention, only information resources that precisely correspond to a given scanner code and/or information that is

known beforehand to be very closely related thereto is provided to a user when the user provides scanner code data to the present invention. The present invention advantageously allows the user to conveniently find information pertaining directly to a specific product or service. The present invention further advantageously allows the user to pick and choose among the information resources available on a network corresponding to a given scanner code. This advantageously renders the experience of finding information resources using a scanner code in an interactive process whereby the user participates in determining precisely which information regarding a product the user retrieves. The present invention advantageously scales well, performing at the same high level of efficiency regardless of how many information resources (either related or unrelated to a product whose scanner code data is stored in the database of the present invention) are added to the network.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a system block diagram of a communication network according to an embodiment of the present invention.

FIG. 2 shows a graphical user interface that can display the search results to a user according to an embodiment of the present invention.

FIG. 3 illustrates an example of a UPC code.

FIG. 4 shows a graphical user interface that can display the search results to a user according to an embodiment of the present invention.

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FIG. 5 shows a system block diagram of a communication network according to another embodiment of the present invention.

FIG. 6 is a flowchart illustrating a method for obtaining a network address where the scanner code data is directly related to the network address, according to this embodiment of the present invention.

FIG. 7 shows a system block diagram of a communication network according to another embodiment of the present invention.

FIG. 8 is a flowchart that illustrates a method for establishing telephone calls over the communications network according to an embodiment of the present invention.

FIG. 9 illustrates a communications system that allows a calling party to initiate a telephone call a telephone network based on scanner code data, according to an embodiment of the present invention.

FIG. 10 is a flowchart illustrating a method for placing a call over the telephone network based on scanner code data, according to an embodiment of the present invention.

DETAILED DESCRIPTION

A system block diagram of a communication network according to an embodiment of the present invention is shown in FIG. 1. Network 101 interconnects a client computer 102 connected to a scanner code-reader 103; a server 104 connected to

a data-base 105; and sites A 106, B 107, and C 108.

Sites A 106, B 107, and C 108 are network nodes that store information resources. Each of the information resources stored on sites 106, 107 and 108 has a corresponding resource address. An example of a resource address is a URL. As used herein, the term "resource address" means any designation sufficient for establishing the location of an information resource on a network. Another example of network 101 is a corporate intranet. An example of site A 106, site B 107 and site C 108 are Web sites on the World Wide Web. Another embodiment of sites A 106, B 107, and C 108 are servers on a corporate intranet that store a proprietary information resources.

In accordance with the present invention, the user provides scanner code data to client computer 102. Client computer 102 comprises a processor, computer readable memory, an input port to be coupled to an input device such as scanner code reader 103 in FIG. 1, an output port to be coupled to output device 109 such as a video monitor, printer, and/or speaker, and a network port to be coupled to network 101. The client computer also comprises a data-bus that interconnects the processor, computer-readable memory, input port, output port and network port.

A server 104 comprises processor, computer-readable memory, a database port to be coupled to database 105, and a network port to be coupled to network 101. The server 104 also comprises a data bus that interconnects the processor, computer readable memory, database port, and network port. Database 105 comprises computer readable memory that is accessed by server 104. Database 105 stores scanner code data

correlated with resource addresses. Scanner code data is defined to be data derived from a scanner code. In one embodiment of the present invention, data corresponding to a single scanner code is correlated with several resource addresses. In another embodiment of the present invention, a single resource address is associated with data from several scanner codes.

In accordance with the method of the present invention, a scanner code is read by scanner 103, which derives data from the scanner code and sends it to the client 102. Client 102 sends a message including scanner code data through network 101 to server 104. Server 104 then queries database 105 for addresses correlated to the scanner code data received from client 102. Database 105 returns the addresses correlated with the scanner code data to server 103, which forwards the resource addresses to the client 102 through network 101. In this way, the client is advantageously able to determine the resource addresses of information resources pertinent to the product corresponding to the scanner code.

When client 102 receives the resource addresses, it presents those addresses to the user through an output device. In one embodiment, for example, if network 101 is the Internet and site A 106, site B 107 and site C 108 are Web Sites, the resource addresses provided to the user by the client are Uniform Resource Locators (URL).

In accordance with one embodiment of the present invention, summary information regarding the contents of an information resource corresponding to an address is presented to the user along with the address. For example, when the user is

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presented with a URL for an information resource pertaining to a can of soup, the corresponding summary information can be presented immediately below the address; the summary information can indicate that the resource at the above address pertains to the nutritional value of the ingredients contained in the soup. This advantageously allows the user to assess the contents of an information resource at a given address.

The summary information can be contained with the database containing records that correlate scanner code data with resource addresses of information resources on the network. The database records can also correlate the scanner code data with the summary information.

In another embodiment, the scanner code has information coded in one dimension of the scanner code. For example, in one embodiment, the scanner code is a Universal Product Code (UPC). In another embodiment, the scanner code is a Stock Keeping Unit (SKU). In yet another embodiment of the present invention, the scanner code has information coded in two dimensions. For example, the two-dimensional scanner code in one embodiment is a Code 49 scanner code introduced by the Intermec Corporation in 1988.

FIG. 2 shows a graphical user interface (GUI) 200 used to display search results to a user according to an embodiment of the present invention. GUI 200 is presented to the user through an output device connected to the client 102. In this example, the user has scanned a UPC code to obtain the address of information resources pertaining to the product on which the UPC code is found.

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GUI 200 provides a title ("UPC search service"), which is displayed in field 201. For the purposes of providing the user with a means of authenticating the accuracy of the UPC code scanned by scanner code reader 103, a graphic representation of the UPC code is displayed to the user in field 202. Below the graphic representation of the scanner code in field 202, the numeric equivalent of the UPC code is displayed in field 203. When the UPC graphic displayed in field 202 and its numeric equivalent displayed in field 203 duplicates the UPC code displayed on the product, the user is assured that the scanner has accurately read the UPC code from the product and the number underneath. An example of a UPC code is shown in FIG. 3 for illustrative purposes.

As seen in FIG. 3, the scanner code for a UPC label comprises a bar code data 250 and a number 260 which is a numeric equivalent of the data contained in the graphic part of the code 250. In response to scanning a graphic scanner code, client 102 provides the user with a URL displayed in field 204 relating directly to the scanned product. Additional resource addresses shown in field 205 can also be displayed to the user. The resource addresses shown in field 205 correspond to information resources that are related to the information resource corresponding to the primary network address shown in field 204.

FIG. 4 shows a GUI 300 used to display search results to a user according to another embodiment of the present invention. GUI 300 provides a title ("UPC search service") in field 301. A graphical representation of the UPC code is displayed to the

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user in field 302; the numeric representation of the scanner code is displayed in field 303. In response to scanning a graphic scanner code, several resource addresses corresponding to the scanned product are displayed to the user in fields 304, 306, 308 and 310.

Each address relates to a different aspect of the scanned product. By allowing the user to select the most relevant resource address relating to the scanned product, this embodiment of the present invention tailors the search results to the user's specific interests. For example, field 304 displays the resource address related to the product's nutritional information; field 306 displays the resource address related to the product's content information; field 308 displays the resource information related to the recipes using the scanned product; field 310 displays the resource information related to the manufacturer.

For each displayed resource address, a corresponding description of the information resource can also be provided. Specifically, fields 305, 307, 309 and 311 display a description relating to the resource addresses displayed in fields 304, 306, 308 and 310, respectively. Just as the resources addresses are correlated with the scanner code data, these descriptions relating to the resource addresses can also be correlated with the scanner code data. These descriptions can be obtained or created when the resource addresses are correlated with the scanner code data. These descriptions can be stored in database 105 as shown FIG. 1.

In accordance with another embodiment of the present invention, the primary

information resource is displayed to the user while the addresses of related information resources are also displayed to the user. Client 102 executes software that receives the resource address and automatically sends a request to the server storing the information resource at the address provided, requesting the server to send the resource to the client. In one embodiment of the present invention, this software comprises a browser executing a client side application program. An example of such a browser is the Netscape Navigator manufactured by the Netscape Communications company of California. Upon receiving the request message from the client, the server sends a copy of the requested resource to the client 102, which then displays the resource to the user. While the primary information resource is displayed to the user, the addresses of related information resources are also provided to the user, for example, within a separate frame. Consequently, the user can simultaneously view the primary information resource and, within a separate frame, the addresses of related information resources. This advantageously allows a user to provide scanner code data to the client and see the correlated information resource immediately while allowing the user to select the addresses of other, potentially more relevant, information resources.

In accordance with another embodiment of the present invention, the server can act as a proxy server. Rather than sending an information resource address to the user, a server acting as a proxy server sends a request for information from the network resource based on the resource address. When the server receives the information, the server forwards the information to the user. A proxy server allows the user to obtain the information from the network resource without the network resource determining the

user's identity because the request appears to originate at the proxy server.

Another embodiment of the present invention is shown in FIG. 5. Network 501 interconnects computer 502 with sites A 505, B 506 and C 507. Computer 502 is connected to database 504, scanner code reader 503 and output device 508. In the embodiment shown in FIG. 5, database 504 is directly accessed by computer 502 rather than through a server connected by a network, as is the case with the embodiment shown in FIG. 2.

In another embodiment of the present invention, the scanner code data can contain information directly related to the network address and which can be supplemented to obtain the full network address. FIG. 6 a flowchart illustrating the method according to this embodiment of the present invention.

At step 700, a server receives scanner code data from the user. The scanner code data can be, for example, derived from a UPC. The scanner code data can be directly related to a network address; for example, where the network address is a URL, the scanner code data can equal the unique portion of the URL.

At step 710, the server builds a URL from the scanner code data. The server queries a database to obtain the supplemental information necessary to construct a full network address. The supplement information contained in the database can include, for example, a prefix such as "http://www." and/or a suffix such as ".com". Using the example illustrated in FIG. 3, the scanner code data can consist of the numeric

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equivalent that identifies "hannibals". The corresponding URL can then be constructed, for example, by adding a prefix such as "http://www." and/or by adding a suffix such as ".com". Thus, following this example, the constructed URL would be <http://www.hannibals.com>.

At conditional step 720, the server is cheeked to determine whether it is acting as a proxy server. If the server is not acting as a proxy server, then the process proceeds to step 730. At step 730, the URL is sent to the user. At step 740, the user sends a request for the network resource based on the received URL. At step 750, the network resource is sent to the user based on the URL.

At conditional step 720, if the server is acting as a proxy server, then the process proceeds to step 760. At step 760, the proxy server sends a request for information from the network resource based on the URL. At step 770, the proxy server receives and passes the information from the network resource to the user. The proxy server allows the user to obtain the network resource without the network resource determining the user's identity because the request appears to originate at the proxy server.

FIG. 7 shows a system block diagram of a communication network according to another embodiment of the present invention. Network 600 interconnects peer A 610, peer B 620 and server 630. Server 630 is connected to database 640.

Peer A 610 and peer B 620 are network nodes where users can access network

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600. Peer A 610 and Peer B comprise a processor, computer readable memory, an input port to be coupled to an input device (not shown) such as a scanner code reader, an output port to be coupled to an output device (not shown), and a network port to be coupled to network 600.

Peer A 610 and peer B 620 are operating special software that allows both to listen for attempts by other peer systems to establish communications over network 600. Peer A 610 and peer B 620 have network addresses. An example of a network address is a URL.

Server 630 comprises processor, computer-readable memory, a database port to be coupled to database 640, and a network port to be coupled to network 600. The server 630 also comprises a data bus that interconnects the processor, computer readable memory, database port, and network port. Database 640 comprises computer readable memory that is accessed by server 630. Database 640 stores scanner code data correlated with resource addresses. Scanner code data is defined to be data derived from a scanner code. In one embodiment of the present invention, data corresponding to a single scanner code is correlated with at least one network address.

FIG. 8 is a flowchart that illustrates a method for establishing telephone calls over the communications network according to an embodiment of the present inv ention. In this embodiment of the present invention, a user at peer A 610 can establish communications with peer B 620 through network 600.

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At step 650, server 630 receives the scanner code data that is derived by peer A 610 from the scanner code. At step 660, server 630 queries database 640 for network addresses corresponding to the scanner code data.

At conditional step 670, if no matching network address is found in database 640, the process proceeds to step 675 where an error message is generated and returned to peer A 610. At conditional step 670, if a matching network address is found, the process proceeds to step 680.

At step 680, server 630 sends the matching network address to peer A 610. At step 690, peer A 610 uses the matching network address to establish communication with peer B 620 through network 620.

FIG. 9 illustrates a communications system that allows a calling party to initiate a telephone call a telephone network based on scanner code data, according to another embodiment of the present invention. Data network 800 is connected to client A 810 and server 820. Server 820 is connected to database 830 and telephone network 840. Telephone network 840 is connected to communication device 850, communication device 860 and telephone network bridge. As shown in FIG. 9, the calling party is assumed to be located at client 810 and communication device 850, and the called party is assumed to be located at communication device 860.

Data network 800 can be, for example, the Internet or a corporate intranet. Telephone network 840 can be the Public Switched Telephone Network (PSTN), an

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international network, or any combination. Communication devices 850 and 860 can be any of a variety of types such as a telephone, a facsimile machine or a personal computer. Communication devices 850 and 860 transmit and receive information. The term "information" as used herein is intended to include data, text, voice, audio, video and/or multimedia. Telephone network bridge 870 allows connects between data network 800 and telephone network 840.

FIG. 10 is a flowchart illustrating a method for placing a call over the telephone network based on scanner code data, using the communications network shown in FIG. 9, according to an embodiment of the present invention. At step 900, server 820 receives the scanner code data and the calling party's telephone number from client 810 through data network 800. At step 910, server 820 queries database 830 to obtain the called party's telephone number based on the received scanner code data.

At conditional step 920, if no telephone number for the called party is found in database 830 based on the scanner code data, then the process proceeds to step 930 where an error message is delivered to client 810. If a telephone number for the called party is found in database 830, then the process proceeds to step 940.

At step 940, server 820 sends the calling party's telephone number and the called party's telephone number to telephone network bridge 870. At step 950, telephone network bridge 870 establishes a connection between communication device 850 and communication device 860 over telephone network 840.

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In another embodiment of the present invention, the database correlates calling parties' network addresses with calling parties telephone numbers, as well as scanner code data with called parties' telephone numbers. The server can receive scanner code data and a calling party network address from the calling party, can search the database obtain the calling party and called party's telephone numbers, and can forward these telephone numbers to the telephone network bridge. The bridge then connects the calling party and the called party in known fashion.

It should of course be understood that while the present invention has been described and referenced to particular system configurations, scanner code formats and information resource types, other configurations are encompassed by the present invention, as is apparent to those of ordinary skill in the art. For example, present invention can include any a plurality of clients, multiple servers connected to databases that include any data correlated with information resource addresses.

The present invention advantageously provides an efficient way to accurately determine the location of an information resource directly pertinent to a given product or service, even when the information resource is stored on a large network with many nodes storing many information resources. The present invention advantageously allows user interaction in the process of submitting scanner code data to retrieve information resources. By interposing the step of returning information resource addresses to the user, and then allowing the user to pick and choose which information resources to access, the present invention advantageously allows the user to tailor the information

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eventually presented to the user regarding a particular product. Similarly, the present invention advantageously allows a product manufacturer or service provider to select which information resource addresses are correlated with the scanner code associated with a particular product or service. Further, the present invention advantageously scales better than known search methods. Known search methods are more likely to return a larger number of less relevant responses as the number of information resources stored on a network increases. The present invention operates with the same efficiency regardless of the number of information resources stored on the network.

What is claimed is:

1. A method for obtaining a plurality of information resource addresses using a scanner code, the information resources being on a network, comprising:

(a) receiving scanner code data from a client;

(b) querying a database correlating the scanner code data with the plurality of information resource addresses; and

(c) providing the plurality of information resource addresses to the client.

2. The method of claim 1, wherein the scanner code has information coded in one dimension of the scanner code.

3. The method of claim 2, wherein the scanner code is Universal Product Code.

4. The method of claim 2, wherein the scanner code is Stock Keeping Unit.

5. The method of claim 1, wherein the scanner code has information coded in two dimensions of the scanner code.

6. The method of claim 1, wherein said step (a) receives scanner code data from an optical scanner.

7. The method of claim 1, wherein the information resource address is a uniform

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resource locator.

8. The method of claim 1, further comprising the step of:

(d) sending a request for information from the client to an information resource located at an information resource address provided in said step (c); and

(e) sending information from the information resource receiving the request in said step (d) to the client.

9. The method of claim 1, wherein the information resource address is provided to the client through an output device.

10. The method of claim 9, wherein the output device is a display and the information resource address is provided through a graphical user interface.

11. An apparatus for obtaining a plurality of addresses of information resources on a network using a scanner code, comprising:

a server having a processor, computer readable memory, a database port to be coupled to a database, a network port to be coupled to the network, and a data bus connecting said processor, computer readable memory and network port;

a client having a processor, computer readable memory, a database port to be coupled to a database, an input port to be coupled to an input device, a network port to be coupled to the network, an output port to be coupled to an output device, and a data

bus connected said processor, computer readable memory, input port, network port and output port; and

a database coupled to said server through said database port, said database comprising information resource address correlated with scanner code data, said database receiving scanner code data from said client and sending the plurality of information resource addresses corresponding to the scanner code data to said client.

12. The apparatus of claim 11, wherein the input device is an optical scanner.

13. The apparatus of claim 11, wherein the output device is connected to the output port of said client.

14. The apparatus of claim 13, wherein the output device is at least one from the group of: a display, a printer, and a speaker.

15. The apparatus of claim 11, wherein the scanner code has information coded in one dimension of the scanner code.

16. The apparatus of claim 15, wherein the scanner code is Universal Product Code.

17. The apparatus of claim 15, wherein the scanner code is Stock Keeping Unit.

18. The apparatus of claim 11, wherein the scanner code has information coded in two dimensions of the scanner code.

19. The apparatus of claim 11, wherein the information resource address is a

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uniform resource locator.

20. The apparatus of claim 11, wherein said client sends a request for information from said client to an information resource located at one information resource address from the plurality, said client receiving information from the information resource.

21. A method for obtaining a hypertext link for an information resource using a scanner code, the information resource being on a network, comprising:

(a) receiving scanner code data from a client;

(b) querying a database correlating the scanner code data with hypertext link; and

(c) providing the hypertext link from step (b) to the client.

22. The method of claim 21, wherein the hypertext link is a uniform resource locator.

23. The method of claim 21, wherein the network is the Internet.

24. The method of claim 21, wherein the scanner code has information coded in one dimension of the scanner code.

25. The method of claim 21, wherein the scanner code is Universal Product Code.

26. The method of claim 21, wherein the scanner code is Stock Keeping Unit.

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27. The method of claim 21, wherein the scanner code has information coded in two dimensions of the scanner code.

28. The method of claim 21, wherein said step (a) receives scanner code data from an optical scanner.

29. The method of claim 21, further comprising the steps of:

(d) sending a request for information from the client to an information resource located at the hypertext link provided in said step (c); and

(e) sending information from the information resource receiving the request in said step (d) to the client.

30. The method of claim 21, wherein the hypertext link is provided to the user through an output device connected to the client.

31. The method of claim 30, wherein the output device is a display and the hypertext link is provided through a graphical user interface.

32. A method for obtaining a primary information resource and a plurality of addresses of related information resources using a scanner, the primary information resource and related information resources being on a network, comprising:

(a) receiving scanner code data from a client;

(b) querying a database correlating the scanner code data with an

address of the primary resource and a plurality of addresses of related information resource; and

(c) providing the primary information resource and the addresses of related information resources.

33. A system for obtaining a plurality of resource addresses of information resources using a scanner code, comprising:

means for receiving scanner code data from a user;

a database correlating the scanner code data with resource addresses of information resources;

means for querying said database; and

means for providing the plurality of resource addresses to the user.

34. A system for obtaining a hypertext link of an information resource using a scanner code, comprising:

means for receiving scanner code data from a user;

a database correlating the scanner code data with a hypertext link of an information resource;

means for querying said database; and

means for providing the selected hypertext link to the user.

35. A method for obtaining an information resource address using a scanner code, the information resource being on a network, comprising:

(a) receiving scanner code data from a client;

(b) querying a database correlating the scanner code data with supplemental address information; and

(c) constructing the information resource address using the scanner code data and the supplemental address information.

36. The method of claim 35, wherein the information resource address is a uniform resource locator.

37. The method of claim 35, further comprising:

(d) providing the information resource address to the client.

38. The method of claim 35, further comprising:

(d) sending a request for information from the client to an information resource located at the information resource address constructed in said step (c); and

(e) sending information from the information resource receiving the request in said step (d) to the client.

39. A method for establishing a call between a calling party and a called party over a telephone network, the call being initiated by the calling party from a data network, comprising:

(a) receiving scanner code data and the calling party's telephone number from the calling party;

(b) querying a database correlating the scanner code data with a called party's telephone number; and

(c) providing the calling party's telephone number and the called party's telephone number to the telephone network.

40. A method for establishing a call between a calling party and a called party over a telephone network, the call being initiated by the calling party from a data network, comprising:

(a) receiving scanner code data and the calling party's network address from the calling party;

(b) querying a database correlating the scanner code data with a called party's telephone number and the calling party's network address with the calling party's telephone number; and

(c) providing the calling party's telephone number and the called party's telephone number to the telephone network.

41. A method for establishing a call between a calling party and a called party over a data network, comprising:

(a) receiving scanner code data from the calling party;

(b) querying a database correlating the scanner code data with a network address of the called party; and

(c) providing the network address of the called party to the calling party.

42. A method for establishing a call between a calling party and a called party over a data network, comprising:

(a) receiving scanner code data from the calling party;

(b) querying a database correlating the scanner code data with a network address of the called party; and

(c) connecting the called party to the calling party based on the called party network address.

FIG. 1

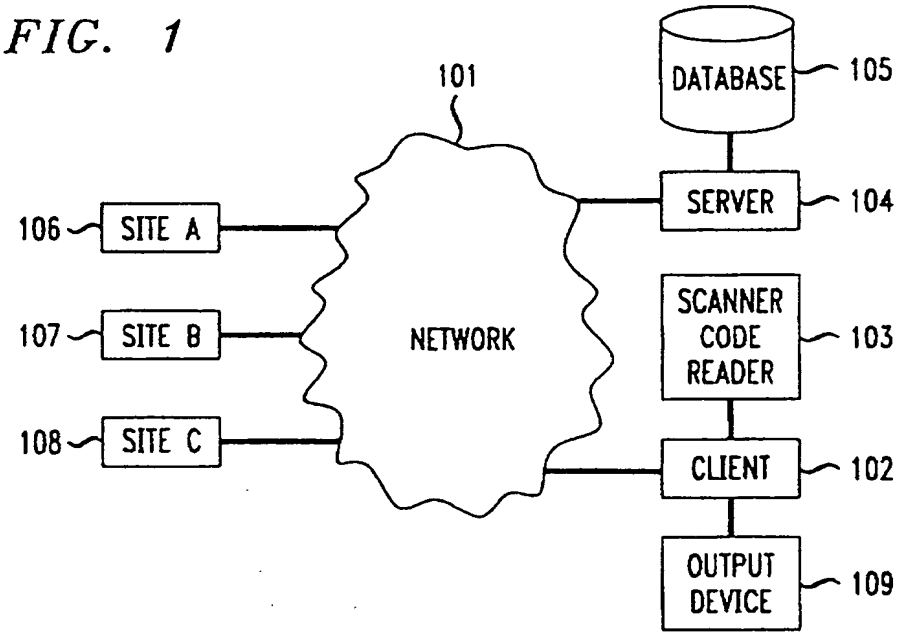
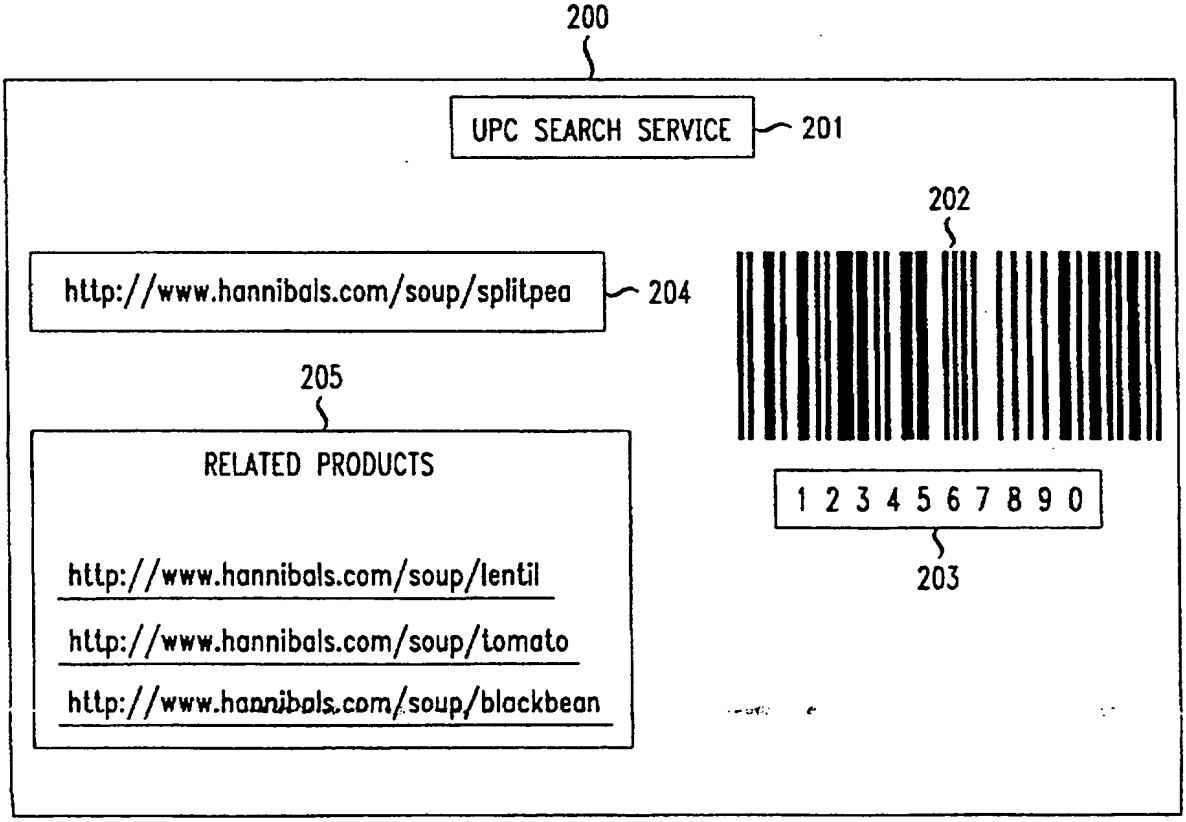


FIG. 2



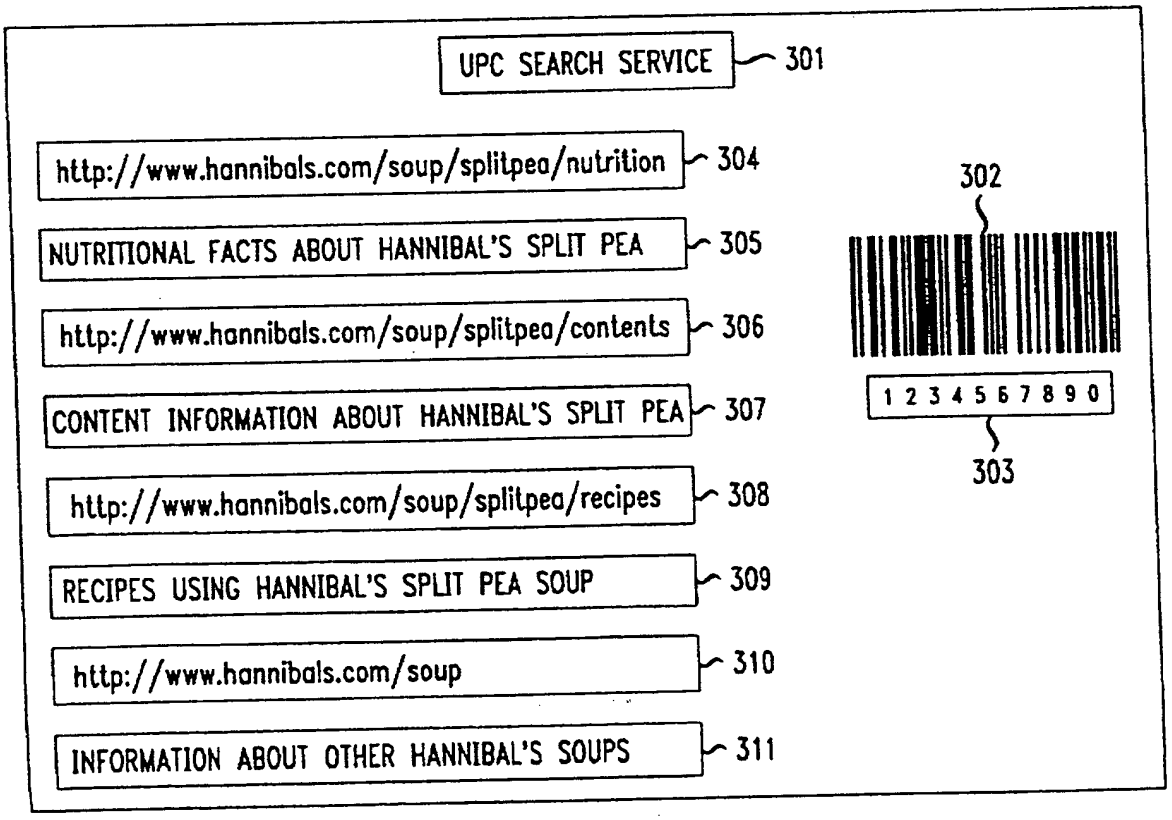
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FIG. 3

PRIOR ART



FIG. 4



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FIG. 5

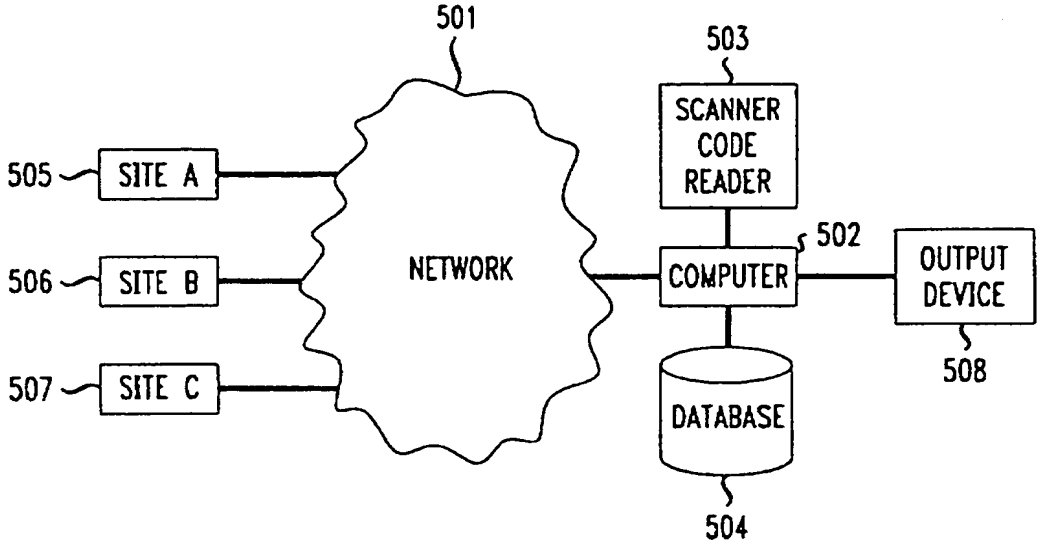
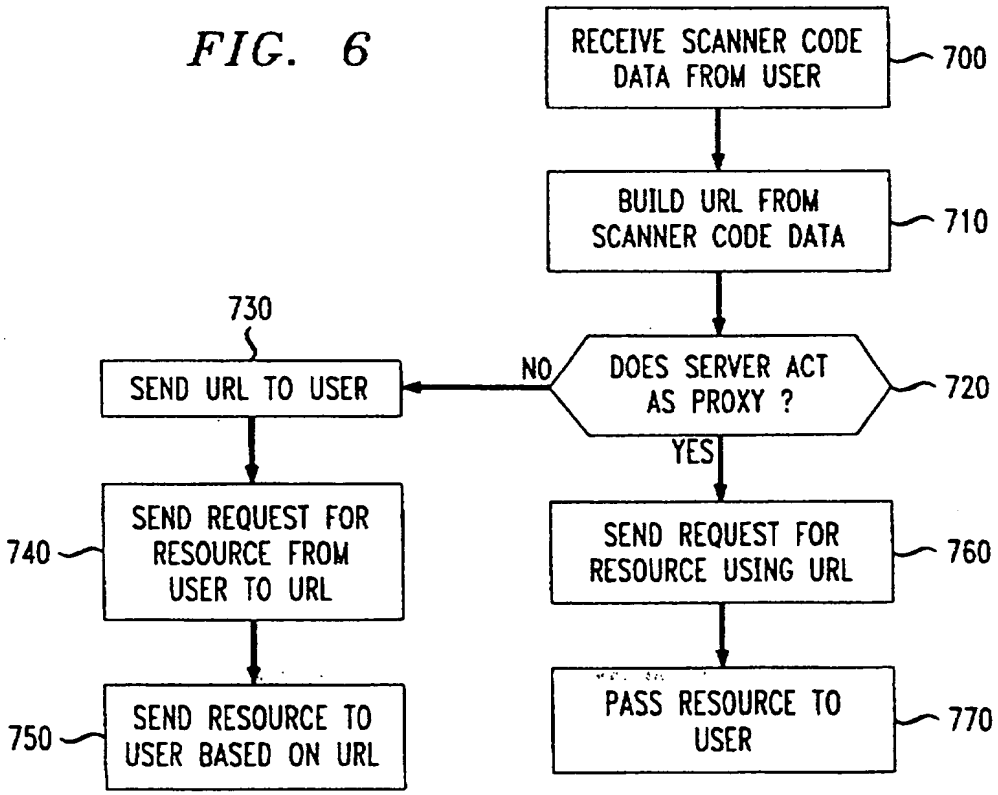


FIG. 6



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FIG. 7

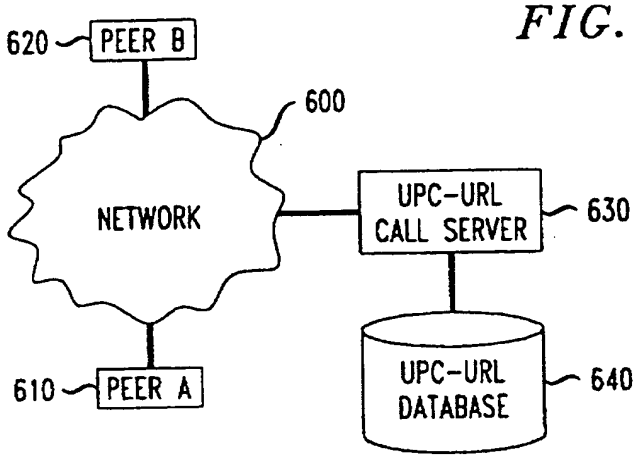
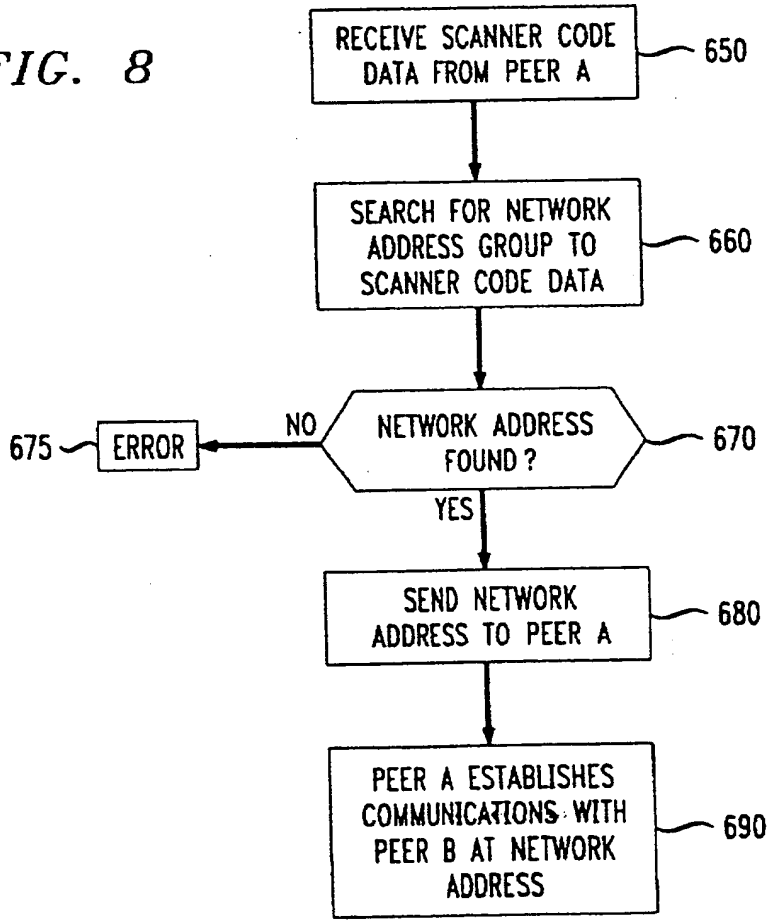


FIG. 8



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FIG. 9

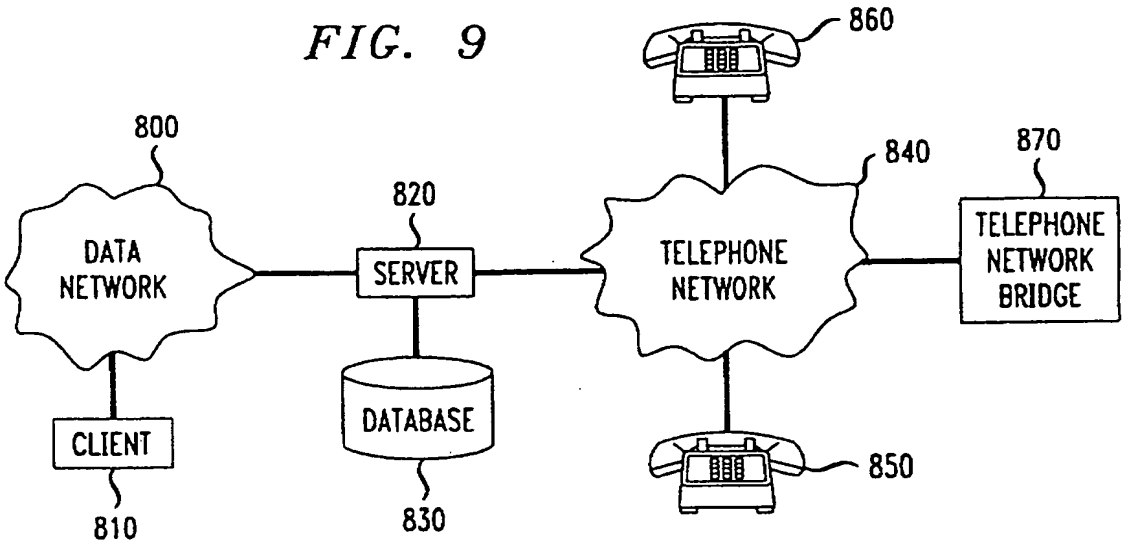
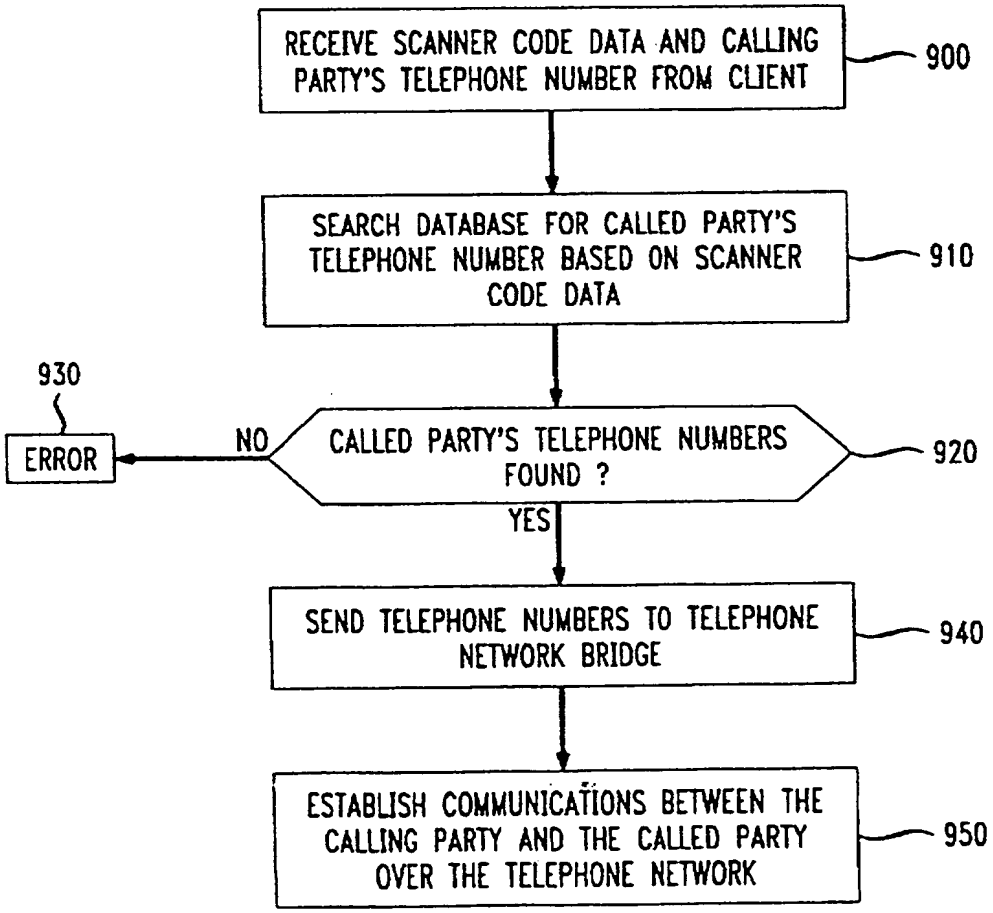


FIG. 10



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